ABSTRACT

Methods and apparatus are disclosed for a combined bulk and transactional database synchronization scheme which may be used, inter alia, in a computer or

5   communications system, including, but not limited to switching systems (including routers) and other systems and devices. A dynamically changing primary database is initially duplicated to a secondary database using bulk and transactional updates. Then, the secondary database is maintained in synchronization with the primary database using transactional updates. The initial use of bulk transaction and transactional updates

10 converges the synchronization process into a transactional model. In one implementation, the primary database is divided into synchronization groups, with each group typically containing multiple entries. Initially, all the groups are marked as requiring bulk synchronization. Systematically for each group, entries from a group are combined into a bulk update message and relayed to a secondary device or component to

15 bulk update the secondary database. When a new update to the primary database is made, if the group to which it belongs is in the process of, or still requires bulk updating, this new update will be propagated to the secondary database in due course with a subsequent bulk update. Otherwise, the new update is placed in transactional update message and forwarded to the secondary device to transactional update the secondary

20 database. Using this technique, a primary database can be duplicated to a secondary database in a fast and efficient manner, while accommodating new updates to the primary database.